Kramer Electronics, Ltd.

USER MANUAL

Model:

VP-300THD

1:2 XGA/HD DA/CAT 5 Transmitter

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups[1] that are clearly defined by function.

Thank you for purchasing the Kramer **VP-300THD** *1:2 XGA/HD DA/CAT 5 Transmitter*, which is ideal for:

- Presentation and multimedia applications
- Long range graphics distribution for schools, hospitals, security, and stores

Each package includes the following items:

- The **VP-300THD** *1:2 XGA/HD DA/CAT 5 Transmitter*
- Power supply (12V DC)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high-resolution cables[3]

1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from our Web site at http://www.kramerelectronics.com

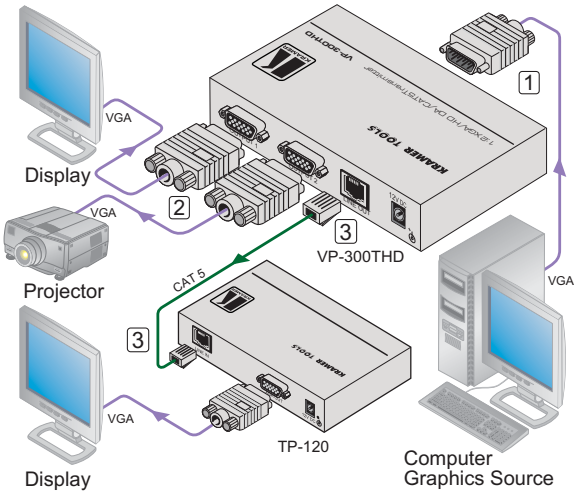
3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.

Step 1: Connect the input and the outputs

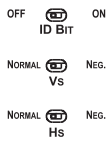
1. Connect the input
2. Connect the outputs
3. Connect the CAT 5 cable between the transmitter (VP-300THD) and the receiver (TP-120)



Step 2: Connect the power

Step 3: If required:

- Set the polarity and the ID bit using the underside switches



3 Overview

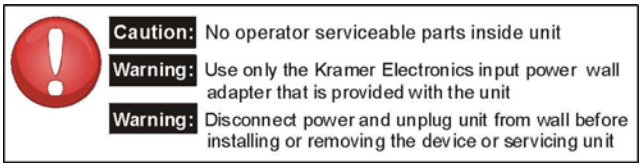
The **VP-300THD** is a high-performance distribution amplifier for computer graphics video signals[1] with resolutions ranging from VGA through UXGA and higher as well as HDTV. It takes one input, provides correct buffering and isolation, and distributes the signal to two computer graphics video or HDTV outputs and one twisted pair output.

The **VP-300THD** features:

- HDTV compatibility
- H & V sync polarity switches for improved HDTV compatibility with the CAT 5 outputs
- ID bit control
- A resolution of up to WUXGA and 1080p
- A transmission range of more than 300 feet (more than 100 meters)
- The Power Connect feature (see section 3.1)
- 12V DC power

To achieve the best performance:

- Use only good quality connection cables[2] to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer **VP-300THD** away from moisture, excessive sunlight and dust


Caution:
No operator serviceable parts inside unit
Warning:
Use only the Kramer Electronics input power wall adapter that is provided with the unit
Warning:
Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

1 Note that the CAT5 connector excludes audio

2 Available from Kramer Electronics on our Web site at http://www.kramerelectronics.com

3.1 About the Power Connect Feature

The Power Connect feature applies as long as the cable can carry power. This feature is available when using STP cable and the distance does not exceed 50m on standard CAT 5 cable. For longer distances, heavy gauge cable should be used[1]. For units which are connected via RJ-45 connectors, make sure that the shield of the STP cable is connected to the metal casing of the connectors on both ends of the cable. For units which are connected via terminal block connectors, the shield of the STP cable must be connected to a ground terminal on the units at both ends (use the ground terminal of the power supply connection if necessary).

For a CAT 5 cable exceeding a distance of 50m, separate power supplies should be connected to the transmitter and to the receiver simultaneously.

3.2 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

We recommend that you use Shielded Twisted Pair (STP) cable. There are different levels of STP cable available, and we advise you to use the best quality STP cable that you can afford. Our non-skew-free cable, Kramer **BC-STP** is intended for analog signals where skewing is not an issue. For cases where there is skewing, our UTP skew-free cable, Kramer **BC-XTP**, may be used. Bear in mind, though, that we advise using STP cables where possible, since the compliance to electromagnetic interference was tested using those cables.

Although Unshielded Twisted Pair (UTP) cable might be preferred for long range applications, the UTP cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference. However, since the use of UTP cable might cause inconformity to electromagnetic standards, Kramer does not commit to meeting the standard with UTP cable.

1 CAT 5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

4 Your VP-300THD 1:2 XGA/HD DA/CAT 5 Transmitter

Figure 1 and Table 1 define the **VP-300THD**:

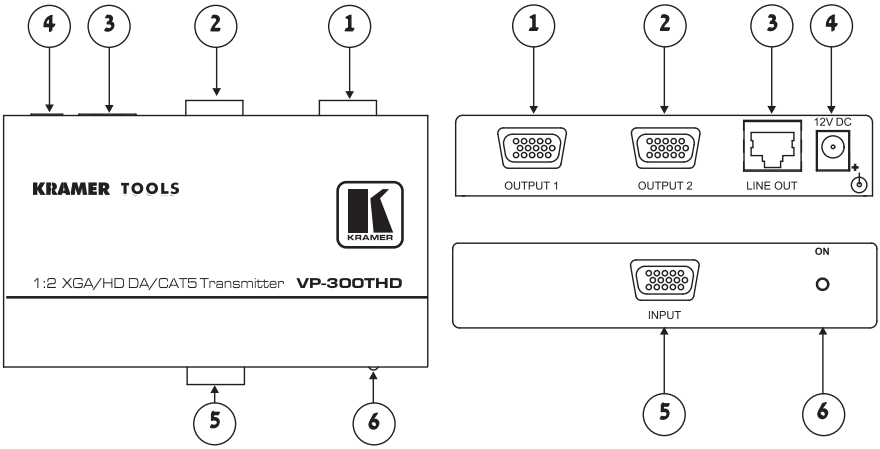


Figure 1: VP-300THD 1:2 XGA/HD DA/CAT 5 Transmitter

Table 1: VP-300THD 1:2 XGA/HD DA/CAT 5 Transmitter Features

#	Feature	Function
1	*OUTPUT* 1 15-pin HD Connector	Connect to the XGA acceptor 1
2	*OUTPUT* 2 15-pin HD Connector	Connect to the XGA acceptor 2
3	*LINE OUT* RJ-45 Connector	Connects to[1] the LINE IN RJ-45 connector on the **TP-120** *XGA Line Receiver*[2]
4	*12V DC*	+12V DC connector for powering the unit

Figure 2 and Table 2 define the underside of the **VP-300THD**:

1 Using a UTP CAT5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Table 3 and Figure 4)

2 Refer to the separate user manual: PT-110, PT-120, TP-120, WP-110, which can be do wnloaded from the Internet at this URL: http://www.kramerelectronics.com

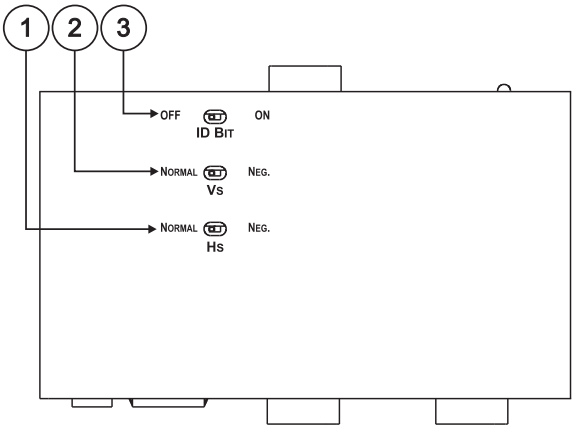


Figure 2: VP-300THD 1:2 XGA/HD DA/CAT 5 Transmitter (Underside)

Table 2: VP-300THD 1:2 XGA/HD DA/CAT 5 Transmitter (Underside) Features

#	Feature	Function
1	*HS* Switch	Slide the switch to the right to change the HS polarity to NEG. (NEGATIVE) polarity[1]; slide the switch to the left[2] (to NORMAL) to retain the polarity
2	*VS* Switch	Slide the switch to the right to change the VS polarity to NEG. (NEGATIVE) polarity[1]; slide the switch to the left[2] (to NORMAL) to retain the polarity
3	*ID BIT* Switch	Slide to the right to set to ON[3]; to the left to set to OFF

5 Connecting the VP-300THD

You can use the **VP-300THD** and, for example, the **TP-120** to configure an *XGA/HD DA/CAT 5* Transmitter and Receiver system.

To connect the **VP-300THD** with the **TP-120**, as the example in Figure 3 illustrates, do the following:

1. On the **VP-300THD** *1:2 XGA/HD DA/CAT 5 Transmitter*, connect the:
   - Computer graphics (XGA / HD) source (for example, a computer) to the INPUT 15-pin HD connector
   - OUTPUT 1 and OUTPUT 2 15-pin HD connectors to up to[4] two acceptors (for example, to a display and to a projector, respectively)

1 Downgoing syncs

2 By default, both switches are set to the left

3 The default. Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

4 When both outputs are not required, connect only the output that is required and leave the other output unconnected

2. On the **TP-120** *XGA Line Receiver*, connect the XGA OUT 15-pin HD connector to the XGA / HD acceptor (for example, a display).
3. Connect the LINE OUT RJ-45 connector on the **VP-300THD** to the LINE IN RJ-45 connector on the **TP-120**, via UTP cabling (with a range of more than 300ft (more than 100 meters)), see section 3.2.
4. Connect the 12V DC power adapter to the power socket on the **VP-300THD**, and plug the adapter into the mains electricity socket. Similarly, connect the other 12V DC power adapter to the power socket on the **TP-120**, and plug that adapter into the mains electricity socket.
5. On the **VP-300THD**, if required:
   - Set the ID BIT switch to ON
   - Set the VS and HS switches[1] on the underside
6. On the **TP-120**, if required:
   - Adjust[2] the video output signal level and/or cable compensation equalization level
   - Set the H SYNC and V SYNC switches[3], on the underside

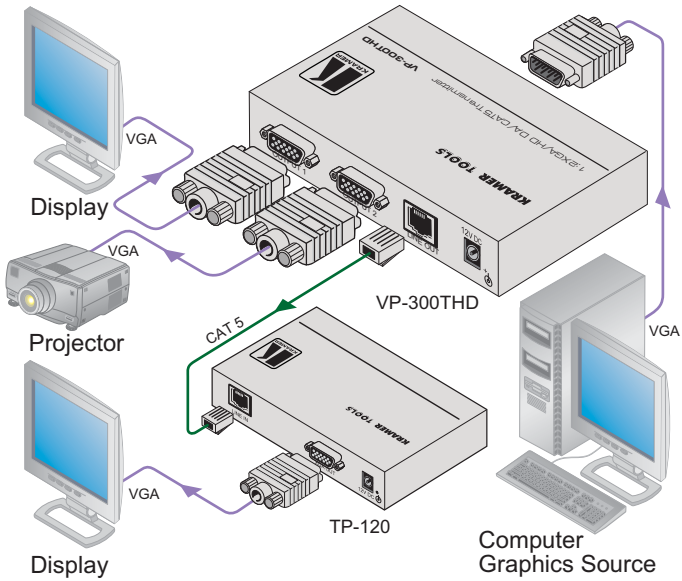


Figure 3: Connecting the VP-300THD

1 By default, both switches are set to the left (to NORMAL) to retain the VS and HS polarity

2 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

3 By default, both switches are set down (for normal V SYNC and H SYNC polarity)

5.1 Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

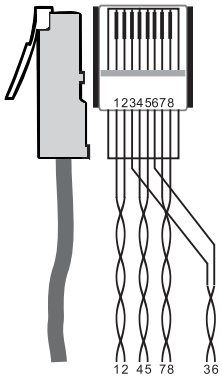
Table 3 and Figure 4 define the UTP CAT 5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Table 3: CAT 5 PINOUT

EIA /TIA 568A	
PIN	**Wire Color**
1	Green / White
2	Green
3	Orange / White
4	Blue
5	Blue / White
6	Orange
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	3 and 6
Pair 3	1 and 2
Pair 4	7 and 8

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

Figure 4: CAT 5 PINOUT



6 Technical Specifications

This section includes the technical specifications[1] of the **VP-300THD**.

Table 4: Technical Specifications of the VP-300THD (with 30m CAT 5 cable)

INPUT:	1 XGA on an 15-pin HD connector
OUTPUTS:	2 XGA on 15-pin HD connectors; 1 RJ-45 connector
MAX. OUTPUT LEVEL[2]:	2.3Vpp (XGA), 1.4Vpp (CAT 5)
RESOLUTION:	Up to UXGA
DIFF. GAIN[2]:	0.03% (XGA), 2.6% (CAT 5)
DIFF. PHASE[2]:	0.05Deg (XGA), 0.28 Deg (CAT 5)
K-FACTOR[2]:	<0.05% (XGA), 0.1% (CAT 5)
S/N RATIO[2]:	75dB (XGA), 71dB (CAT 5)
CONTROLS[2]:	LEVEL: –9.1dB to 2.3dB (CAT 5) EQ.: 0 to 35dB (CAT 5)
COUPLING[2]:	DC (XGA), AC (CAT 5)
POWER SOURCE:	12V DC, 280mA
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98") W, D, H
WEIGHT:	0.3 kg. (0.67 lbs.) approx.
ACCESSORIES:	Power supply
OPTION:	RK-3T 19" rack adapter

1 Specifications are subject to change without notice

2 "CAT 5" specifications refer to a VP-300THD to TP-120 configuration

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a d ealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

  * FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

P/N: 2900-000182 Rev: 3

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
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P/N: 2900-000182 REV 3